Constraint Schedule Management Alternatives

8/13/04

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1. Bilateral Redispatch (inc/dec) Of Specific Units For Problems

BPAT would enter into bilateral contracts with specific generation owners to have them raise or lower their generation when requested by BPAT in order to address internal flowgate problems in real-time.

i. Description of the data the customer would be required to provide BPAT;

- No change to current practice of scheduling control area-to-control area or system-to-system.
- Generator providing the inc/dec service would need to provide BPAT data on expected unit output on both preschedule and real-time, minimum generation levels, maximum generation levels, inc and dec costs on a per kW-h basis, up and down ramp rates of the unit, person to contact when BPAT needs the plant to inc or dec, number of hours the generator is willing to provide the inc or dec service, schedule of planned unit maintenance. Generator must also immediately inform BPAT if any unexpected event occurs which would prevent the generator from providing the service.

ii. Description of the data BPAT would be required to provide the customer;

BPAT would need to inform the generator providing the inc/dec service when we needed them to provide the service, how we need them to inc or dec, how long we needed them to adjust their generation, BPAT contact information.

iii. Timeline for submittal of the data (i.e. when does the data need to be provided);

- Generator must provide their information to BPAT the day of preschedule for the day(s) being prescheduled.
- Generator must update this data in real-time two hours ahead of the scheduling hour.
- BPAT must provide the generator with its data with 10 minutes notice.

iv. Description of the systems and process changes needed by BPAT and the customers;

- BPAT would need dispatcher/scheduler displays which indicate the amount of redispatch that is available, its cost, and its effectiveness for relieving specific flowgate problems. Metering and audit capability is required to insure that generators provide the requested redispatch. Mechanisms required to track when BPAT calls for redispatch, which units are used, how many megawatts are redispatched, and the number of hours the redispatch is needed.
- BPAT will need a PUF based calculator which determines the amount of relief obtained over each flowgate based upon the units available for redispatch.

v. Time required to implement the needed systems and process changes;

- Systems work likely to take about 6 months for requirements, design, and testing.
- Several months will be required to develop and negotiate the necessary bilateral agreements.

vi. Description of how the alternative would work in preschedule, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- No changes to E-Tags anticipated. Preschedule occurs as it does today.
- Generators providing the redispatch would need to provide the data described above to BPAT via an electronic format, which would then feed into BPAT's displays.
- This alternative does not enable any more detailed analysis of ATC or curtailments at preschedule than we have today. ATC and preschedule curtailments would have to be handled as they are today.

vii. Description of how the alternative would work in real-time, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- This alternative does not enable any more detailed analysis of ATC during real-time than we have today.
- Schedules and E-Tags would be submitted by customers as they do today.
- Generators providing the redispatch would need to provide the data described above to BPAT via an electronic format, which would then feed into BPAT's displays.
- If a flowgate limit is violated in real-time, BPAT determines the amount of redispatch required to relieve the problem. BPAT contacts the appropriate generators and informs them of the amount of redispatch required, how long it is anticipated to last, and how soon the redispatch needs to be accomplished. Generators provide the redispatch as requested. BPAT logs what redispatch was requested. E-Tags will have to be adjusted if the redispatch is over a control area boundary. If adequate redispatch cannot be obtained in order to solve the problem, BPAT will fall back to current practices.

viii. Description on how the alternative would impact dynamic schedules. No impacts anticipated.

ix. Changes to tariffs, rates, and grandfathered contracts that would be required;

BPAT would need to develop a rate recovery mechanism to recover the costs of these bilateral redispatch agreements. This will require a 7(i) process.

x. Implications for after-the-fact and billing functions;

ATF will need to track when the redispatch is called upon. BPA Corporate Finance will have to set up necessary tracking to handle the invoices and payments associated with the redispatch.

xi. Seams issues with non-BPA control areas both inside and outside the PNW;

If a generator providing the redispatch is in another control area, then issues of who acquires transmission inside that other control area (is it BPAT or the generator?) must be addressed. Also, interchange schedules and E-Tags will have to be adjusted within the hour when BPAT calls upon this redispatch if the generator is in another control area.

xii. Benefits of the alternative;

- This should reduce the amount of curtailments suffered by the interties in real-time as a result of internal flowgate problems.
- Does not change our basic scheduling procedures.
- Leaves most scheduled transactions intact.
- Concept is relatively easy to understand.
- Should minimize the number of customer questions that occur during curtailment events.
- Should enable BPAT to quickly respond in most cases to real-time curtailment events, especially for mid-hour problems.

xiii. Drawbacks of the alternative, including costs and degree of difficulty to implement;

- Does not provide any help in computing ATC in preschedule or real-time.
- Does not provide any help in addressing curtailment issues in preschedule. Interties will likely still take the hit.
- Major issues with market power on the part of the generators.
- Assuming that the redispatch costs are rolled into BPAT's transmission rates, all customers will bear the costs, even if most of the redispatch needed is predominately over certain specific flowgates which are most heavily impacted by a few customers.
- No clear way to sort out firm vs nonfirm usage of the flowgate, so redispatch and its associated costs may be incurred due to nonfirm usage of a flowgate.
- Potentially complex contract negotiations up front.

- Need for regular auditing to insure that generators live up to the terms of the bilateral agreement.

2. Higher Resolution Scheduling

Under this option, schedules and E-Tags are submitted with a finer level of granularity than is done currently. Schedules would no longer be merely control area to control area or system to system. Rather, systems and control areas would be, at the very least, broken down into smaller zones defined by the flowgates and PUF factors. Many smaller systems could be considered their own zones since they are not bisected by any flowgates and their facilities are all electrically very close in proximity to one another. In its ultimate form, this option could even go down to the bus level (Just as long-term firm contracts specify POR's and POD's). This is already done today in certain specific instances, such as remote generation and John Day, Malin, and NOB for Intertie transactions.

i. Description of the data the customer would be required to provide BPAT;

- Customers would provide schedules and E-Tags showing POR's and POD's at either a zonal level or at the bus level. Bus level specifications would include specifying the voltage.
- Control areas, sources, and sinks would still be specified in the appropriate fields as required now on the e-tag.
- The POR, POD, and MW amount specified for each schedule and e-tag need to be reflective of actual system loads and resource dispatches.

ii. Description of the data BPAT would be required to provide the customer;

- If a zonal approach is used, BPAT would need to provide information to the customers as to where the zonal boundaries lie and what part of the customer's system falls in each zone so that customers could determine which zones their schedules originate from and are going to.
- If bus to bus scheduling is adopted, then BPAT needs to provide a list of all the busses that customers can use as allowable POR's and POD's in schedules and E-Tags based upon their specific contracts with BPAT.

iii. Timeline for submittal of the data (i.e. when does the data need to be provided);

- BPAT would need to provide the zone or bus data a number of days in advance of when customers could use them for scheduling. For zonal approach, the addition or deletion of flowgates could cause zone boundaries to change. These sorts of changes will likely require 2-4 weeks advance notice.
- Customers would submit their schedules and E-Tags under standard scheduling timelines.

iv. Description of the systems and process changes needed by BPAT and the customers;

- Customers would need a means for determining which zones or busses to specify for the POR and POD of each schedule and e-tag.

- POR/POD designations on OASIS used for reservations of short-term firm must be modified to conform to the new scheduling procedure. Scheduling and e-tag systems will need to be able to validate POR/POD data submitted against reservation data. BPAT is going to need to insure that its OASIS system can accommodate all the new POR/POD names.
- To facilitate redirects, there needs to be a high degree of consistency in how POR's and POD's are specified in long-term contracts, short-term contracts, schedules, and E-Tags.
- Choice of using zones vs. bus to bus scheduling is critical for determining requirements for BPAT's PUF calculators for use in ATC and curtailment computations. PUF's are computed at the bus level from powerflow data. Adoption of the zonal approach would require a modification to how the PUF's are calculated.

v. Time required to implement the needed systems and process changes;

- For BPAT's work, estimate it will likely take 3-6 months to coordinate and register all the new POR/POD names; to refine the tag validation systems and processes; and, if a zonal approach is adopted, refine the PUF calculators to define the PUF's based upon zones instead of busses.
- For the customers, need to allow 3-6 months for them to develop systems to identify and handle zone or bus level POR/POD specifications.

vi. Description of how the alternative would work in preschedule, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- In preparation for preschedule, customers must determine which zones or busses to specify for their POR's and POD's and the megawatts to be scheduled between each POR/POD combination. This needs to be based upon a realistic assessment of loads and resource forecasts.
- Schedules and E-Tags are submitted by the customers to BPAT under standard preschedule timelines and processes.
- BPAT would then run these schedules through the appropriate PUF calculators to compute hourly ATC for preschedule sales and to determine if the impact of submitted firm schedules on flowgates are within any pro rata scheduling required due to planned outages.

vii. Description of how the alternative would work in real-time, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- Process for the customers is essentially the same as in preschedule. Customers would need to update their schedule and e-tag submittals in real-time if load and generation dispatches change in order to insure that the schedules are reflective of actual conditions.
- Schedules and E-Tags are submitted by the customers to BPAT under standard real-time timelines and processes.

- BPAT would then run these schedules through the appropriate PUF calculators to compute hourly ATC for real-time sales and to determine the magnitude of the impacts of the schedules on the flowgates for curtailment purposes.

viii. Description on how the alternative would impact dynamic schedules;

Since this option requires a greater level of specificity for POR's and POD's, the number of dynamic schedules would likely increase because dynamically scheduled transaction may have to be broken down into smaller pieces.

ix. Changes to tariffs, rates, and grandfathered contracts that would be required;

- There should be no change to rates.
- BPAT's current tariff explicitly allows for zonal scheduling (see Attachment C of the tariff).
- Scheduling provisions in some grandfathered contracts may be less clear. May require an addendum to the contract.

x. Implications for after-the-fact and billing functions;

Some modifications to BPAT's existing billing systems is likely, especially to for Unauthorized Increase and sheltering computations.

xi. Seams issues with non-BPA control areas both inside and outside the PNW;

- BPAT needs to register whatever new POR's and POD's come out of this process. This includes coordinating the POR/POD names with neighboring transmission providers at the points where BPAT interfaces with them.
- Delivery of reserves and loss schedules will require a similar level of POR/POD specificity.

xii. Benefits of the alternative;

- Provides the necessary data for accurate ATC and curtailment calculations.
- Does not require any changes to standard scheduling timelines or the base systems for handling schedules and E-Tags.
- Greatly facilitates BPAT's ability to begin taking requests for long-term firm service over OASIS.
- Many other major WECC transmission providers, especially outside the PNW, register bus level POR's and POD's. Adoption of this option would make BPAT's scheduling and e-tagging practices more consistent with these wider WECC practices.
- Provides greater visibility and transparency in how BPAT's system is being used.
- Readily conforms to the new flow-based paradigm for managing the grid.

xiii. Drawbacks of the alternative, including costs and degree of difficulty to implement;

- Requires the customers to provide a much higher level of detail in their tags and schedules than they do today.
- The volume of tags and schedules will increase significantly.
- If a zonal approach is adopted, major outages may shift the zone boundaries because of the shifting system topology. Note: this is not a problem with bus-to-bus scheduling.
- May require customers to develop a level of forecasting capability which they currently do not have and which may be expensive to acquire.

3. Leave Schedule Alone, But Get Load/Gen Forecasts And Map That Data Into the Flowgates

i. Description of the data the customer would be required to provide BPAT;

- Customers would submit their E-Tags and schedules in the same level of specificity that they do today.
- In addition to the above, customers would provide BPAT with a detailed forecast of their loads, resources, imports, and exports which they want to move over the FCRTS for the days that they are pre-scheduling for. These forecasts would then be updated in the Real time day.
- Load and resource forecast are to be submitted in an hourly profile and this data needs to be at a zone or bus level.

ii. Description of the data BPAT would be required to provide the customer;

- If a zonal approach is used, BPAT would need to provide information to the customers as to where the zonal boundaries lie and what part of the customer's system falls in each zone so that customers could determine which zones their load and resources fall into.
- Alternatively, if customers provide BPAT with their load and resource forecasts at the bus level, BPAT would provide customers with what level of bus aggregation BPAT would like to see.

iii. Timeline for submittal of the data (i.e. when does the data need to be provided);

- Customers would need to submit their forecasts of load, generation, imports, and exports the prior to the preschedule day. The forecasts must cover the day or days that will be prescheduled. In fact, this data probably would need to be submitted by the early afternoon the day before preschedule.
- Forecasts must be updated in real-time 2 hours prior to the hour of delivery.
- Due to the analysis that will likely be required, schedules and E-Tags may have to be submitted earlier than is done currently.

iv. Description of the systems and process changes needed by BPAT and the customers;

- Customers must develop tools and processes to develop the necessary forecasts of load, generation, import, and exports as described above.

- Customers will be required to submit the forecasts to BPAT through a common electronic system using a common format. Faxes, e-mails, phone calls, etc, which would require human intervention in order to accept and process the forecast data would not work.
- BPAT would have to develop a model which computes the flowgate impacts based upon the submitted forecasts.
- BPAT and the customers would need to agree upon an algorithm to determine how much of the flowgate impacts computed from the forecasts are attributable to firm transactions vs. nonfirm transactions.
- BPAT and the customers would need to agree upon an algorithm for doing demand checks through constrained flowgates since the schedules and E-Tags would still be at the control area or system level. There is a major issue regarding how to match up/map the submitted schedules/E-Tags to the forecast data (and the flowgate impacts derived from that forecast data).

v. Time required to implement the needed systems and process changes;

As a rough estimate, this is likely to require 18-24 months of dedicated effort on the part of both BPAT and the customers.

vi. Description of how the alternative would work in preschedule, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- Customers would submit forecast data to BPAT by mid-afternoon the day before preschedule.
- BPAT would run a model to determine the anticipated impacts to the flowgates based upon the forecasts and the resulting ATC.
- BPAT would also check to insure that each party's submitted forecasts of load, generation, imports, and exports which they want to move over the FCRTS balance. This must be done to insure data integrity. If the forecasts for a particular customer don't balance, BPAT will inform the customer and the customer must resubmit a balanced forecast by a time certain so that BPAT will have enough time to run the model.
- In the preschedule day, customers will submit their schedules and E-Tags to BPAT. BPAT will check all the firm schedules to insure that the firm schedules submitted under each firm contract are within the associated contract demand, including any pro rata reductions required due to reduced OTC's over the flowgates.
- Customers must update their load, generation, import, and export forecasts during preschedule so that these forecasts are consistent with the schedules/E-Tags they are submitting. BPAT will check once again to be sure that each customer's forecasts balance and that they are also consistent with the submitted schedules/E-Tags. If the forecasts for a particular customer don't balance or are not consistent with the schedules, BPAT will inform the customer and the customer must resubmit a balanced, consistent forecast by a time certain so that BPAT will have enough time to run the model.

- Once all the schedules/E-Tags are in, BPAT would run the model again to determine if any of the flowgates would be congested. NOTE: the input to the model is the forecasts, not the schedules since the schedules do not provide the necessary resolution.
- If none of the flowgates are congested, proceed to real-time with the submitted schedules. If one or more of the flowgates would be congested as predicted by the model, then some sort of congestion management protocol similar to what is being proposed in various RTO forums would be required.

vii. Description of how the alternative would work in real-time, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- Customers must update their load, generation, import, and export forecasts during real-time so that these forecasts are consistent with the schedules/E-Tags they are submitting. BPAT will check once again to be sure that each customer's forecasts balance and that they are also consistent with the submitted schedules/E-Tags. If the forecasts for a particular customer don't balance or are not consistent with the schedules, BPAT will inform the customer and the customer must resubmit a balanced, consistent forecast by a time certain so that BPAT will have enough time to run the model
- Once all the schedules/E-Tags are in, BPAT would run the model again to determine if any of the flowgates would be congested. NOTE: the input to the model is the forecasts, not the schedules since the schedules do not provide the necessary resolution.
- If none of the flowgates are congested, proceed to the operating hour with the submitted schedules. If one or more of the flowgates would be congested as predicted by the model, then some sort of congestion management protocol similar to what is being proposed in various RTO forums would be required.
- This proposal does not provide a clear way to curtail schedules/adjust E-Tags during a mid-hour emergency. BPAT would have to revert back to the current practice of curtailing the various interties or do some variation of redispatch or deemed POR's/POD's. Alternatively, one of the congestion management protocols being proposed for the various RTO's nationally could be used.

viii. Description on how the alternative would impact dynamic schedules;

The dynamic schedules themselves should not change since this proposal does not alter schedules or E-Tags from current practice; however, the dynamic schedules would need to be part of the forecasts.

ix. Changes to tariffs, rates, and grandfathered contracts that would be required;

- Changes/amendments to the tariff and grandfathered contracts may be needed in order to require the customers to submit the necessary forecast data and to possibly also adjust the scheduling timelines to accommodate the time needed to run the model.

- No immediate rate changes would be anticipated, unless RTO type congestion management protocols were adopted. Also, a means for insuring accuracy of the forecast data may eventually be required.

x. Implications for after-the-fact and billing functions;

No obvious issues identified at this time.

xi. Seams issues with non-BPA control areas both inside and outside the PNW;

Changing timelines to accommodate BPAT's need to run its analysis could delay checkout on both preschedule and real-time.

xii. Benefits of the alternative;

- Aligns more closely with some of the RTO proposals, thereby potentially making the transition to an RTO easier.
- This proposal does not alter the schedules or E-Tags themselves.
- Provides an accurate overall impact calculation on the flowgates.

xiii. Drawbacks of the alternative, including costs and degree of difficulty to implement;

- Highly complex. Requires a complicated congestion management model, which is not currently well defined.
- Requires the customers to submit two different sets of data: their regular schedules and E-Tags, and the forecasts. Level of data required in the forecasts would be substantial. Furthermore, the need for all this additional data goes right into real-time.
- High estimated cost to implement and long lead-time.
- No clear means to associate schedules with the forecasts of load and generation. Also, no clear way to attribute firm vs. nonfirm uses of a flowgate.
- No clear means of performing a mid-hour curtailment in real-time.
- Much oversight required to insure accuracy of data submittals.

4. Status Quo – Cut the Interties

In this discussion, the term "Interties" refers to the COI, PDCI, RATS, Northern Intertie, West of Garrison, West of Hatwai, and LaGrande.

i. Description of the data the customer would be required to provide BPAT;

Standard schedules and E-Tags.

ii. Description of the data BPAT would be required to provide the customer;

Standard approval or denial of schedules and E-Tags.

iii. Timeline for submittal of the data (i.e. when does the data need to be provided);

Standard scheduling/e-tagging timelines per BPAT's Reservation and Scheduling Procedures.

iv. Description of the systems and process changes needed by BPAT and the customers;

Status quo - no changes to current systems and process required.

v. Time required to implement the needed systems and process changes;

N/A

- Description of how the alternative would work in preschedule, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;
- Operational Transfer Limits (OTC's) are computed for the interties prior to the preschedule day. These OTC's are set in many cases to address problems on flowgates internal to the network, not problems on the interties themselves.
- Pro rata scheduling limits are given to the firm contract holders on the interties if these OTC's are below the level required to support BPAT's firm commitments.
- During preschedule, ATC is tracked only on the interties.

vi. Description of how the alternative would work in real-time, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- OTC's are determined for the interties an hour ahead of the hour of delivery. These OTC's are set in many cases to address problems on flowgates internal to the network, not problems on the interties themselves.
- Pro rata scheduling limits are given to the firm contract holders on the interties if these OTC's are below the level required to support BPAT's firm commitments.
- ATC is only tracked over the interties.
- Actual flows are monitored over several of the internal flowgates and OTC limits for those flowgates are provided to the BPAT dispatcher by BPAT's Technical Operations staff.
- If the actual flows exceed the OTC of one of these internal flowgates, BPAT will attempt to identify a larger nonfirm schedule that is obviously contributing to the loading of the flowgate (for example, a generator on the I-5 corridor feeding into the Paul-Allston flowgate) and cut it. If this is not enough to relieve the flowgate or if such schedules cannot be identified in the time needed, BPAT will curtail the interties.

vii. Description on how the alternative would impact dynamic schedules;

Status quo – no change to the way dynamic schedules are submitted.

viii. Changes to tariffs, rates, and grandfathered contracts that would be required;

Status quo – no changes required in tariffs, rates, or contracts.

ix. Implications for after-the-fact and billing functions;

Status quo – no change to after-the-fact or billing.

x. Seams issues with non-BPA control areas both inside and outside the PNW;

This status quo option impacts control areas outside the PNW more than would otherwise be necessary because this option relies heavily on the use of the interties to relieve internal flowgate problems.

xi. Benefits of the alternative;

- No change needed to scheduling and e-tag processes.
- This option does focus the curtailment on ties where the schedules are clearly known.
- This option does allow for fast changes via the AGC controllers in order to relieve loadings.

xii. Drawbacks of the alternative, including costs and degree of difficulty to implement;

- This option does not yield the most effective or efficient curtailments. Hence, more overall megawatts have to be cut than would otherwise be necessary.
- Major issue of equitable treatment of all applicable schedules. In no case is BPAT currently able to identify all the schedules which impact a particular flowgate in real-time. Intertie schedules or individual customers with large nonfirm schedules on the flowgate end up shouldering the curtailment burden. In fact, this option often results in firm intertie schedules being cut while network nonfirm transactions that actually impact the flowgate problem are not cut.
- Curtailing the interties often results in cuts to schedules that have little or no effect on relieving the internal flowgate problem.

5. Deemed POR's/POD's

Under this proposal, schedules and E-Tags would be the same as they are today; however, for each control area or system shown as a por or pod on a schedule or e-tag, BPAT would deem a predefined bus or busses for that por or pod which would be used to run a PUF analysis. This analysis would then be used to determine flowgate impacts for ATC and curtailment purposes. Larger or more dispersed systems would need to be broken down into several of these deemed busses based upon some sort of zonal analysis. BPAT would then allocate the megawatts shown on the schedule or e-tag to these deemed busses based on predefined allocation factors prior to running the PUF analysis. Busses listed as POR's and POD's in a customer's long-term contract could potentially be used as the deemed busses in this analysis.

i. Description of the data the customer would be required to provide BPAT;

- Customers would submit schedules and E-Tags with same POR/POD resolution as they do today.
- Customers would need to review and provide feedback to BPAT on the deemed busses.

- Customers with larger systems where multiple deemed busses have identified would need to provide BPAT with allocation factors that reasonably represent the relative distribution of the loads and resources within their systems.

ii. Description of the data BPAT would be required to provide the customer;

- BPAT would need to inform the customers as to what busses BPAT wishes to deem for their POR's and POD's.
- BPAT would need to tell a customer if multiple deemed points are needed for their POR's and POD's.
- After review by the customer, BPAT would need to inform the customer of the deemed busses BPAT intends to use and the final allocation factors.

iii. Timeline for submittal of the data (i.e. when does the data need to be provided);

- Deemed busses and allocation factors need to be in place prior to initial implementation of this option.
- The deemed busses and allocation factors must be reviewed at least seasonally to insure that they are still reasonably reflective of the actual system. The allocation factors could be updated by the customer more frequently in response to changes in system topology and seasonal load/generation variations. BPAT recommends, but would not require, that customers consider making the allocation factor updates on a daily basis, especially for the deemed busses associated with their POR's.
- Any updates to the allocation factors would need to be submitted to BPAT the day before preschedule for use during preschedule. BPAT would also like to eventually provide the capability to allow customers to update their allocation factors one hour prior to the scheduling hour to reflect real-time changes in load and resource distributions.
- A process would be needed to review changes customers submit to their allocation factors to insure that they are reasonable. this would likely involve some sort of comparison of the submitted changes with actual loading data.

v. Description of the systems and process changes needed by BPAT and the customers;

- BPAT would need to develop criteria on how to determine which busses to deem and if multiple deemed busses were required. Some potential criteria include:
    1. Is the customer's system bisected by one or more flowgates?
    2. Are the customer's loads and/or resources in close enough proximity such that use of a single deemed bus provides adequate accuracy in BPAT's ATC and curtailment analyses? if it is determined that multiple deemed busses are required for a customer, each deemed bus would need to represent a coherent section of the customer's loads/resources.

3. Is the customer's system dispersed into smaller isolated areas? if so, then these areas would need to be represented by separate deemed busses.

- A process would need to be developed so that customers can provide BPAT their allocation factors. This would need to be done electronically using a common format.
- BPAT would need to develop a process and system for posting and updating the deemed busses and associated allocation factors so that customers can view them.
- BPAT's ATC and curtailment calculators would have to be designed to incorporate a mapping of the POR's/POD's shown on the schedules and E-Tags to the associated deemed busses, including accounting for the allocation factors.

vi. Time required to implement the needed systems and process changes;

Estimate 6-12 months. The determination of the deemed busses and associated allocation factors should only take a short period of time. The bulk of the time estimated is due to the need to develop systems to accept and post the information, as well as time to implement the ATC and curtailment calculators that will use the data.

vii. Description of how the alternative would work in preschedule, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- Schedules and E-Tags would be submitted as they are today. The data in the schedules and E-Tags would also be the same as today.
- BPAT would then feed the schedules/E-Tags into its ATC calculator as they came in and would run an appropriate PUF analysis to determine the impact of each schedule on the flowgates and the resulting ATC. The deemed busses and allocation factors would be used to drive this analysis.
- The impacts computed from the calculator would also be used to insure that a customer's impact to a flowgate was within their contract demand rights, including any pro rata curtailments due to outages or other system conditions.

viii. Description of how the alternative would work in real-time, particularly how it would impact E-Tags, ATC calculations, and the ability to perform curtailments;

- Schedules and E-Tags would be submitted as they are today. The data in the schedules and E-Tags would also be the same as today.
- BPAT would then feed the schedules/E-Tags into its ATC calculator as they came in and would run an appropriate PUF analysis to determine the impact of each schedule on the flowgates and the resulting ATC. The deemed busses and allocation factors would be used to drive this analysis.

- The impacts computed from the calculator would also be used to insure that a customer's impact to a flowgate was within their contract demand rights, including any pro rata curtailments due to outages or other system conditions.
- The same deemed busses and PUF calculations would be used to determine those schedules that impact a flowgate for mid-hour curtailments and how much the schedules would have to be curtailed.

ix. Description on how the alternative would impact dynamic schedules;

This proposal should not result in any significant changes in the way dynamic schedules are treated.

x. Changes to tariffs, rates, and grandfathered contracts that would be required;

No changes to rates, tariffs, or grandfathered contracts should be needed to implement this proposal. Attachment C of the tariff explicitly allows for zonal scheduling.

xi. Implications for after-the-fact and billing functions;

No significant issues are apparent.

xii. Seams issues with non-BPA control areas both inside and outside the PNW;

Schedules, E-Tags, and timelines are not affected by this proposal, so there do not appear to be significant seams issues.

xiii. Benefits of the alternative;

- This alternative appears to be relatively simple to implement and understand.
- No changes required to the schedules and E-Tags themselves.
- Would allow a higher degree of resolution in the ATC and curtailment analyses than current practice. Would allow a greater ability to identify and manage those transactions that impact specific flowgates. This should provide more equitable treatment of transactions across the system and, in many cases, reduce the overall amount of transactions that need to be curtailed.
- Would still allow for the use of other tools, such as redispatch, in those circumstances where use of these other tools makes sense.
- Would allow the customer to update their data as they see necessary prior to preschedule and, eventually, in real-time.

xiv. Drawbacks of the alternative, including costs and degree of difficulty to implement;

- The deemed busses and allocation factors will not exactly match the actual distribution of a customer's loads and resources. Hence, the resulting flowgate impact, ATC, and curtailment calculations will have an inherent degree of inaccuracy. This could result in curtailments that are not as effective as anticipated, that cut some customers disproportionately compared to their actual flowgate impacts, and which could lead to inadvertently over or underselling a flowgate. This

will be a particular problem on the resource side since generation dispatches vary widely. Customers will have to be proactive in keeping their allocation factors up to date.

- BPAT and a customer may disagree over which busses are the proper ones to deem and what the allocation factors should be.